

AMENDMENTS TO THE DRAWINGS

Fig. 1 is amended to include a "Prior Art" label.

Attachment: Replacement Sheets

REMARKS

Claims 10-16 are pending. By this Amendment, claims 17-21 are cancelled and claims 10 and 14-16 are amended. No new matter is introduced by the amendments.

In view of the following comments, Applicants respectfully request favorable consideration and prompt allowance of claims 10-16.

Drawings

The Examiner objected to Fig. 1. Applicants amended Fig. 1 to include a "Prior Art" label. Applicants respectfully request withdrawal of the drawing objection.

Specification

The Examiner objected to the specification. Applicants thank the Examiner for a careful reading of the specification. Applicants amended the specification and respectfully request withdrawal of the specification objections.

Claim Objections

The Examiner objected to claims 10, 14, and 21 for informalities. Applicants note that claim 21 is cancelled. Applicants thank the Examiner for a careful reading of the claims. Applicants amended claims 10 and 14 and respectfully request withdrawal of the claim objections.

Rejection Under 35 U.S.C. § 112, First Paragraph

The Examiner rejected claims 10-21 under 35 U.S.C. § 112, first paragraph, asserting that the specification does not reasonably provide enablement for electroless deposition.

While Applicants do not acquiesce in the Examiner's assertion, to advance prosecution, Applicants amended "deposition" to "electrodepositing" in claim 10. Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. § 112, first paragraph rejection.

Rejection Under 35 U.S.C. § 112, Second Paragraph

The Examiner rejected claims 10-21 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter that Applicants regard as the invention. Applicants note that claims 17-21 are cancelled.

With respect to claims 10, the Examiner asserted that the expression of the Markush group is improper and that the "the structures hard chrome layer" feature lacks antecedent basis. With respect to claim 15, the Examiner suggested that "further" be inserted after "which."

Applicants amended claims 10 and 15 and respectfully request withdrawal of the 35 U.S.C. § 112, second paragraph rejection.

Rejections Under 35 U.S.C. § 102

The Examiner rejected claim 16 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,415,761 to Müll ("Müll I"), U.S. Patent No. 6,319,385 to Müll ("Müll II"), EP 1,205,582 and U.S. Patent No. 6,837,981 to Horsthemke (collectively "Horsthemke"), U.S. Patent No. 5,196,108 to Wilmeth et al. ("Wilmeth"), and German Patent Publication No. DE 44 32 512. While Applicants do not acquiesce in the Examiner's rejection, Applicants amended claim 16 to advance prosecution. Applicants respectfully request reconsideration of the rejection based on the following comments.

*Rejection Over Müll I*

The Examiner rejected claim 16 under 35 U.S.C. § 102(b) as being anticipated by Müll I. For the reasons discussed below, Müll I does not prima facie anticipate Applicant's claimed invention. Accordingly, Applicant respectfully requests reconsideration of the rejection.

Because Müll I does not teach all of the features of claim 16, Müll I does not anticipate Applicant's claimed invention. To anticipate a claim, the reference must teach every element of the claim. MPEP 2131. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Id. quoting Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Specifically, Müll I does not teach or suggest a hard chromium layer comprising at least one of a cup-shaped structure, a labyrinth-like structure, or a column-shaped structure. Rather, the chromium layer of Müll I comprises a "structured" spherical geometry (Figs. 4-7, col. 7, ln. 7, and col. 7, ll. 14-16), wherein the structure is described as "evenly and orderly."

Therefore, because Müll I does not teach all of the features of claim 16, Müll I does not anticipate Applicant's claimed invention. Applicant respectfully requests the withdrawal of the rejection under 35 U.S.C. § 102(b) as being anticipated by Müll I.

*Rejection Over Müll II*

The Examiner rejected claim 16 under 35 U.S.C. § 102(b) as being anticipated by Müll II. Like Müll I, Müll II does not teach or suggest a hard chromium layer comprising at least one of a cup-shaped structure, a labyrinth-like structure, or a column-shaped structure. Rather, Müll II teaches hard chromium layer having a spherical geometry (Figs. 3 and 4 and col. 6, ll. 45-53). Accordingly, Applicant respectfully requests the withdrawal of the rejection under 35 U.S.C. § 102(b) as being anticipated by Müll II.

*Rejection Over Horsthemke*

The Examiner rejected claim 16 under 35 U.S.C. § 102(b) as being anticipated by Horsthemke. Applicant respectfully requests reconsideration of the rejection.

Horsthemke does not teach or suggest a hard chromium layer comprising at least one of a cup-shaped structure, a labyrinth-like structure, or a column-shaped structure, as included in claim 16, as amended. Rather, Horsthemke describes a cathodic current yield (current efficiency) of at least 15 % (column 5, lines 53-54). Examples A and B of Horsthemke further teach a current efficiency of 15-16 % and 22.8 %, respectively (column 6, line 5, and column 6, line 38). As these higher current yields of Horsthemke do not enable achieving the claimed at least one of cup-shaped, labyrinth-like, or column-shaped structures, claim 16 is not anticipated by Horsthemke. Applicant respectfully requests reconsideration of the rejection.

*Rejection Over Wilmeth*

The Examiner rejected claim 16 under 35 U.S.C. § 102(b) as being anticipated by Wilmeth. Applicant respectfully requests reconsideration of the rejection.

Wilmeth does not teach or suggest a hard chromium layer comprising at least one of a cup-shaped structure, a labyrinth-like structure, or a column-shaped structure, as included in claim 16, as amended. Rather, Wilmeth teaches a cathode efficiency of about 18-20 % (column 5, line 11). Because these higher current yields of Wilmeth do not enable achieving the claimed at least one of cup-shaped, labyrinth-like, or column-shaped structures, claim 16 is also not anticipated by Wilmeth. Applicant respectfully requests reconsideration of the rejection.

*Rejection Over DE 44 32 512*

The Examiner rejected claim 16 under 35 U.S.C. § 102(b) as being anticipated by German Patent Application DE 44 32 512 ("the '512 publication"). Like Müll I, Müll II, Horsthemke, and Wilmeth, the '512 publication does not teach or suggest does not teach or suggest a hard chromium layer comprising at least one of a cup-shaped structure, a labyrinth-like structure, or a column-shaped structure. Rather, the '512 publication depicts spherical geometry (Figs. 1 and 2). Accordingly, the '512 application does not prima facie anticipate Applicant's claimed invention. Applicants respectfully request reconsideration of the rejection.

Rejection Under 35 U.S.C. §§ 102 and 103 Over Horsthemke, Wilmeth, and DE 44 32 512

The Examiner rejected claims 10-15 under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over each of:

- 1) Horsthemke;
- 2) Wilmeth; and
- 3) DE 44 32 512.

As discussed below, none of the cited references prima facie anticipate Applicant's claimed invention. Nor has a prima facie case of obviousness been established.

*Rejection Under 35 U.S.C. § 102 over Horsthemke, Wilmeth, and DE 44 32 512*

The Examiner rejected claims 10-15 under 35 U.S.C. § 102(b) as being unpatentable over each of Horsthemke, Wilmeth, and DE 44 32 512. For the reasons discussed below, none of Horsthemke, Wilmeth, and DE 44 32 512 prima facie anticipate Applicants' claimed invention. Accordingly, Applicants respectfully request reconsideration of the rejection in view of the following comments.

None of Horsthemke, Wilmeth, and DE 44 32 512 anticipate claim 10, or the claims depending therefrom, as each element as set forth in claim 10 is not found in any of the references. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP § 2131 citing Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Id. quoting Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

As discussed above, Horsthemke describes a cathodic current yield (current efficiency) of at least 15 % (column 5, lines 53-54). Examples A and B of Horsthemke further teach a current efficiency of 15-16 % and 22.8 %, respectively (column 6, line 5, and column 6, line 38). Wilmeth teaches a cathode efficiency of about 18-20 % (column 5, line 11). DE 44 32 512 depicts chromium coatings with spherical geometry (Figs. 1 and 2) and, like Horsthemke and Wilmeth, does not teach a cathodic current yield in the production of the structured structures hard chrome layer is 12% or less.

The Examiner merely lists the features of the claims and characterizes the "wherein the cathodic current yield in the production of the structured structures hard chrome layer is 12% or less" feature of claim 10 as being "inherent." However, in relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. MPEP 2112. The Examiner's characterization of the feature as being "inherent" does not satisfy the burden of presenting a prima facie case. Rather, as included in MPEP 2112, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied references.

Therefore, because none of Horsthemke, Wilmeth, or DE 44 32 512 teach all of the features of claim 10, the cited references do not anticipate Applicant's claimed invention. Applicant does not comment further on issues relating to dependent claims 11-15, although Applicant does not acquiesce in the Examiner's assertions regarding these claims. Applicant respectfully requests the withdrawal of the rejection under 35 U.S.C. § 102(b) as being anticipated by each of Horsthemke, Wilmeth, and DE 44 32 512

*Rejection Under 35 U.S.C. § 103 Over Horsthemke, Wilmeth, and DE 44 32 512*

The Examiner rejected claims 10-15, in the alternative, under 35 U.S.C. § 103(a) as being unpatentable over Horsthemke, Wilmeth, and DE 44 32 512. For the reasons discussed below, claims 10-15 are not prima facie obvious over any of Horsthemke, Wilmeth, and DE 44 32 512. Applicants respectfully request reconsideration of the rejection.

"To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." MPEP § 2142 (citing In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)).

Each of the references do not render Applicants' claimed invention prima facie obvious, as none of the cited references teach or suggest all of the features included in independent claim 10. Prima facie obviousness is not established if all the elements of the rejected claim are not disclosed or suggested in the cited art. In re Ochiai, 37 USPQ 1127, 1131 (Fed. Cir. 1995); see also, MPEP § 2143.03 ("To establish prima facie obviousness of a claimed invention, all of the claim



limitations must be taught or suggested by the prior art."). Specifically, none of Horsthemke, Wilmeth, or DE 44 32 512 teach or suggest a cathodic current yield in the production of the structured structures hard chrome layer of 12% or less. Rather, the Examiner merely lists such feature as being "inherent." However, as discussed above, in relying upon the theory of inherency for a section 103 rejection (as with the section 102 rejection) the Examiner failed to provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. MPEP 2112.

Further, the Examiner has provided no motivation to modify the cited references to include a cathodic current yield in the production of the structured structures hard chrome layer of 12% or less. As recited above, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference. MPEP 2143. Specifically, the cited references do not provide any suggestion or motivation that a lower current yield might have advantageous effects. Rather, low current yields are regarded as disadvantageous throughout the prior art, because a lower current yield is accompanied by poor efficiency. Therefore, striving for higher current yields in the prior art teaches away from the feature of a cathodic current yield in the production of the structured structures hard chrome layer of 12% or less. The Examiner has not provided any motivation to modify the cited references and therefore a prima facie obviousness has not been met.

With respect to specific features noted by the Examiner in the claims depending from claim 10, these issues are not commented on further here because they are presently moot given the above analysis, although Applicants do not acquiesce in the Examiner's position. See MPEP § 2143.03 ("If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.") Accordingly, Applicants respectfully request withdrawal

of the rejection of claims 10-15 as being unpatentable over each of Horsthemke, Wilmeth, and DE 44 32 512 under 35 U.S.C. § 103(a).

Conclusion

In view of the foregoing, it is submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of the application are respectfully requested.

The Examiner is invited to telephone the undersigned if the Examiner believes it would be useful to advance prosecution.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Erik M. Drange', with a long horizontal flourish extending to the right.

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